UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/196,574	11/20/1998	KIRAN CHALLAPALI	PHA-23.540	9299

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EXAMINER
LEE, RICHARD J

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
		09/196,574	CHALLAPALI ET AL.
Office Action Summary		Examiner	Art Unit	
		Richard Lee	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 June 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 7-15* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

1.   The request filed on June 28, 2006 for a Request for Continued Examination (RCE) is

acceptable and a RCE has been established. An action on the RCE follows.

2.   Claims 7 and 14 are objected to because of the following informalities:

        (1) claim 7, line 9, "the the" should be changed to "the" for clarity; and

        (2) claim 14, line 10, before "a DCT block", "the" should be deleted for clarity.

Appropriate correction is required.

3.   Claims 1-5, 7-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply

with the written description requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to reasonably convey to one skilled in the relevant

art that the inventor(s), at the time the application was filed, had possession of the claimed

invention.

        The Specification does not provide support for the particular features of "wherein an

encoding rate of the second lower level of quantization is not varied to accommodate an

encoding rate of the first high level" as respectively claimed in claim 1, lines 26-27, claim 4,

lines 16-18, claim 7, lines 21-22, claim 8, lines 21-22, claim 11, lines 24-25, and claim 14, lines

20-21; the particular features of "wherein a threshold is provided to determine whether an 8 x 8

DCT block is to be encoded at a first high level of quantization or a second lower level of

quantization" as respectively claimed in claim 7, lines 6-8, claim 8, lines 7-9, claim 14, lines 8-

10.

        Again, the present invention is best exemplified with Figure 4 of the drawings.

Foreground information detector 50 is provided with stereo images A and B (page 5, lines 19-20

of the Specification) for comparison in order to determine foreground pixels. Specifically, a

disparity threshold is chosen, such as the value of 7, so that any disparity above the threshold 7

indicates the pixel is foreground and any disparity below 7 indicates the pixel is background

information (see page 6, lines 3-6 of the Specification). The output of the foreground detector 50

is one of the images, e.g. image B, and another block of data and indicates which pixels are

foreground pixels, e.g. '1', and which are background pixels, e.g. '0' (page 6, lines 8-12 of the

Specification). The outputs from the foreground information detector 50 are provide to a DCT

block classifier 52 for creating 8 x 8 DCT blocks of the image and also binary blocks which

indicate which DCT blocks of the image are foreground and which are background information

(see Figure 3B and page 6, lines 12-15, page 7, lines 4-5 of the Specification). A threshold

which can be predefined or vary as the bit rate capacity of the channel varies is used to identify

the block as a foreground block or a background block to encoder 56 (see page 6, lines 15-20 of

the Specification). DCT blocks identified as foreground information (logic '1' DCT disparity

block) will be encoded with a finer quantization level (see page 7, lines 1-9 of the Specification)

and DCT blocks identified as background information (logic '0' disparity block) will be encoded

coarsely, i.e. lower quantization level (see page 7, lines 8-9 of the Specification).

The applicants argued at pages 13-14 of the amendment filed May 19, 2006 that the

Specification at page 7, line 11- page 8, line 6 provides support for the claimed features in

question, quoting the similar passage as identified by the Examiner in the above paragraph. The

Examiner believes that the applicants have incorrectly referenced page 7, line 11-page 8, line 6

of the Specification; instead it should be page 6, lines 3+ of the Specification. Notwithstanding

this, the Examiner has reviewed the Specification thoroughly, but still believes there is no

support for the claimed limitations for the following reasons. As explained in the above, page 6,

lines 15-20 of the Specification describes how a threshold which can be predefined or vary as the

bit rate capacity of the channel varies is used to identify the block as a foreground block or a

background block to encoder 56. Similarly, page 7, lines 8-9 of the Specification describes how

a DCT block is to be encoded coarsely, i.e. lower quantization level coding, when a logic '0'

DCT disparity block is identified by DCT block classifier 52. It is to be noted that the present

invention is concerned with bit rate capacity of the channel since a varying threshold may be

used to manipulate the selection of foreground and background DCT blocks (page 6, lines 15-20

of the Specification), and the subsequent quantization of the foreground and background DCT

blocks. The disclosure therefore provides no support for a threshold to determine whether a

block or an 8 x 8 DCT block is to be encoded at the first high level of quantization or the second

lower level of quantization and wherein an encoding rate of the second lower level of

quantization is not varied to accommodate an encoding rate of the first high level as respectively

claimed. Instead, the first high level of quantization or second lower level of quantization is

automatically provided for the DCT blocks once the DCT blocks have been identified/classified

as foreground or background DCT blocks. In order words, while a threshold is used to classify

the DCT blocks as either foreground or background DCT blocks, no threshold is used for

determining whether a block or DCT block is to be encoded at the first high level of quantization

or the second lower level of quantization and there is no teaching within the Specification for

"wherein encoding rate of the second lower level of quantization is varied to accommodate an

encoding rate of the first high level", as respectively claimed.

4.   Claims 10 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

For examples:

      (1) claim 10, line 3, "the first higher level" shows no clear antecedent basis;

      (2) claim 14, line 9, "the first high level of quantization" shows no clear antecedent basis;

and

      (3) claim 14, lines 9-10, "the second lower level of quantization" shows no clear

antecedent basis.

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stenger of record

(DE 3608489A1) in view of Katata et al of record (5,815,601).

      Stenger discloses a method of improving image segmentation of a video telephone scene

as shown in Figures 3 and 4, and substantially the same apparatus for processing a stereo pair of

images, comprising substantially the same memory which stores process steps (i.e., as provided

to carry out functions within Figure 4), and a processor which executes the process steps stored

in the memory so as to extract foreground information from the stereo pair of images (see page 4,

lines 4-10 of translated article),

Stenger does not particularly disclose, though, a processor which executes the process

steps stored in the memory so as to extract foreground information from the stereo pair of images

in the form of foreground 8 x 8 DCT blocks of coefficients, wherein a threshold is provided to

determine whether a block is to be encoded as a foreground 8x8 DCT block, and to encode the

foreground 8 x 8 DCT blocks of coefficients at a first high level of quantization and to encode

remaining 8 x 8 DCT blocks of coefficients at a second lower level of quantization as claimed in

claim 15. However, Katata et al discloses an image encoder as shown in Figure 1 and teaches

the conventional use of a DCT block transformer (i.e., within 106 of Figure 1, and see column 5,

lines 1-4) coupled to a foreground extractor (i.e., 101, 102 of Figure 1 and see column 4, line 45

to column 5, line 4) for providing foreground and background DCT blocks of coefficients,

thereby providing a threshold to determine whether a block is to be encoded as a foreground 8x8

DCT block (see column 1, lines 36-58, column 4, line 45 to column 5, line 4), and an encoder

(i.e., within 106 of Figure 1, and see column 5, lines 1-4) coupled to the DCT block transformer

which encodes the foreground 8 x 8 DCT blocks of coefficients at a first high level of

quantization and which encodes background (remaining) 8 x 8 DCT blocks of coefficients at a

second lower level of quantization (see column 1, lines 12-25, columns 7-8). Therefore, it

would have been obvious to one of ordinary skill in the art, having the Stenger and Katata et al

references in front of him/her and the general knowledge of stereo image processings within

video phone environments, would have had no difficulty in providing a DCT block transformer

and an encoder for providing different quantization level processings for foreground and

background image data as determined from a threshold, as taught by Katata et al for the stereo

image videophone system within Stenger for the same well known image compressions purposes

as claimed.

7.   Claims 1-5, 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stenger

and Katata et al as applied to claim 15 in the above paragraph (6), and further in view of Vogel

of record (5,412,431), Monro et al of record (6,078,619) and Chun et el of record (6,038,258).

The combination of Stenger and Katata et al discloses substantially the same image

processing device and system, method of encoding a stereo pair of images, computer executable

process steps to process image data from a stereo pair of images, and apparatus for processing a

stereo pair of images, further comprising substantially the same input which receives a stereo

pair of images (see 10 of Figure 3 and 11, 12 of Figure 4 of Stenger); a foreground extractor (13-

15 of Figure 4 and see page 4, lines 4-10 of translated article of Stenger) coupled to the input

which compares location of like pixel information in each image to determine which pixel

information is foreground pixel information and which pixel information is background pixel

information, wherein the foreground extractor computes the difference in location of like pixels

in each image and selects the foreground pixels as those pixels whose difference in location falls

above a threshold distance; a DCT block classifier (i.e., within 106 of Figure 1 of Katata et al,

and see column 5, lines 1-4) coupled to the foreground extractor (i.e., 101, 102 of Figure 1 of

Katata et al, and see column 4, line 45 to column 5, line 4) for determining which DCT blocks of

at least one of the images contain a threshold amount of foreground information, wherein a

threshold is provided to determine whether an 8x8 DCT block is a foreground block or a

background block (see column 1, lines 36-58, column 4, line 45 to column 5, line 4 of Katata et

al); an encoder (i.e., within 106 of Figure 1 of Katata et al, and see column 5, lines 1-4) coupled

to the DCT block classifier and to the foreground extractor which encodes the DCT blocks

having the threshold amount of foreground information/block with a first high level of

quantization and which encodes DCT blocks/remaining blocks having a less than the threshold

amount of foreground information (i.e., background information as provided by the threshold 15

of Figure 4 of Stenger et al) at a second lower level quantization (see column 1, lines 12-25 and

columns 7-8 of Katata et al) relative to the first high level of quantization (i.e., different

quantization step sizes pertaining to a selected area of interest are assigned, with high and low

quantization level selections, see column 7, line 49 to column 8, line 24, column 9, line 38 to

column 10, line 13 of Katata et al); wherein the stereo pair of images are received from a stereo

pair of cameras spaced closely from one another in a video conference system (see Figure 3 of

Stenger); the extracting includes identifying the location of like pixels in each of the stereo pair

of images, calculating the difference between the locations of like pixels, and determining for

each set of like pixels whether the difference between locations falls above a threshold

difference, and if so identifying those pixels as foreground information (see page 4, lines 4-10 of

translated article of Stenger); wherein the encoding step encodes an entire 8 x 8 block of DCT

coefficients at the first high quantization level if the 8 x 8 block of DCT coefficients contains the

predetermined amount of foreground pixel information (see column 1, lines 12-58, columns 7-8

of Katata et al); wherein the encoding step encodes an entire 8 x 8 block of DCT coefficients at

the first higher level if at least a predetermined number of foreground pixels are within the 8 x 8

block, otherwise the entire 8 x 8 block of DCT coefficients is encoded at the second lower level

(see column 1, lines 12-58, columns 7-8 of Katata et al); and the encoder providing bit stream

information (i.e., the different quantization levels assigned for the specific areas are being

transmitted to the decoder as shown in Figures 2 and 18 of Katata et al) for decoding of both the

high level of quantization and lower level of quantization that are encoded.

The combination of Stenger, Katata et al, and Vogel does not particularly disclose,

though, the followings:

(a) wherein at least a majority of a bandwidth is encoded at the first high quantization

level and the first high level of quantization as claimed in claims 1, 4, 7, 8, 11, and 14;

(b) wherein the DCT block classifier receives the indication of foreground pixel

information representing a contour of a participant whose image is at least part of the stereo pair

of images is not represented by a precise number of pixels but rather the contour is defined by a

plurality of 8 X 8 DCT blocks as claimed in claims 1, 4, 7, 8, 11, and 14; and

(c) wherein a threshold is provided to determine whether an 8 X 8 DCT block is to be

encoded at a first high level of quantization or a second lower level of quantization and wherein

an encoding rate of the second lower level of quantization is not varied to accommodate an

encoding rate of the first high level as claimed in claims 1, 4, 7, 8, 11, and 14.

Regarding (a), it is noted that Katata et al does teach the particular finer quantization for

areas of interest, such as the facial region (i.e., foreground data, see column 1, lines 12-25,

column 4, lines 45-61, column 5, lines 5-20, column 7, line 26 to column 8, line 23, column 9,

line 36 to column 10, line 13, Figures 1, 13, 14b, 17). It is well recognized in the art that finer

quantization requires more bandwidth. And though Katata is silent as to where a majority of the

bandwidth is encoded, it is nevertheless considered obvious that a majority of a bandwidth is

encoded for the foreground data (i.e., facial region) since a finer quantization level is required.

In any event, Monro et al discloses an object oriented video system and teaches the conventional

use of a bit rate manager 42 of Figure 1 for allocation of a majority of bandwidth for foreground

information over background information (see column 2, lines 55-63, column 5, lines 30-37,

column 6, lines 7-17). Therefore, it would have been obvious to one of ordinary skill in the art,

having the Stenger, Katata et al, and Monro et al references in front of him/her and the general

knowledge of foreground/background encoding of video data, would have had no difficulty in

using the particular majority of bandwidth allocation for foreground data as taught by Monro et

al to provide a majority of a bandwidth to be encoded at the first high quantization level and the

first high/higher level of quantization for the foreground data of Katata et al and Stenger for the

same well known image quality control and bandwidth allocation control purposes as claimed.

Regarding (b), it is noted that though silent in Katata et al, the contour DCT block coding

as claimed is nevertheless considered obviously provided by the particular position, shape and/or

facial image data coding within the area position and shape encoding section 102, parameter

adjusting section 104 and encoding section 106 of Figure 1 of Katata et al (see column 4, line 45

to column 5, line 20 of Katata et al). In any event, Chun et al discloses an encoding system as

shown in Figure 1 and teaches the conventional use of encoder 20 for encoding contour data with

DCT transformations (see column 4, lines 38-44). And since Katata et al teaches 8 X 8 DCT

block transformations, such specific block transformations may certainly be provided within

Chun et al to thereby render obvious the claimed limitations. Therefore, it would have been

obvious to one of ordinary skill in the art, having the Stenger, Katata et al, Monro et al, and Chun

et al references in front of him/her and the general knowledge of contour codings, would have

had no difficulty in providing the contour defined 8 X 8 DCT block coding as taught by the

combination of Katata et al and Chun et al for the stereo image videophone system of Stenger for

the same well known contour image compression purposes as claimed.

Regarding (c), Vogel discloses a device for controlling the quantizer of a hybrid coder as

shown in Figures 1 and 2, and teaches the conventional use of a threshold value Lmax for

determining fine (first high level) or coarse (second lower level) quantization (see column 2,

lines 44-58), and wherein an encoding rate of the second lower level of quantization is not varied

to accommodate an encoding rate of the first high level. Therefore, it would have been obvious

to one of ordinary skill in the art, having the Stenger, Katata et al, Monro et al, Chun et al, and

Vogel references in front of him/her and the general knowledge of selective quantization based

on thresholds, would have had no difficulty in providing the use of a threshold system for

determining a high level or lower lever of quantization and wherein an encoding rate of the

second lower level of quantization is not varied to accommodate an encoding rate of the first

high level as taught by Vogel as part of the image compression system within Stenger and Katata

et al for the same well known selective quantization for improving the quality certain images

purposes as claimed.

8.   The applicants argued at pages 13-14 of the amendment filed May 19, 2006 that "... a

reading of this section reveals that Vogel teaches determining a difference between two

consecutive data blocks and a background index L is increased when the difference falls below a

predetermined value and that the quantizer is set to a finer quantization whenever the background

index L has a value which is above a threshold value Lmax and whenever at least one further

system parameter has reached or exceeded a predetermine threshold and that the quantizer is set

to a quantization which is at least as coarse as the quantization effected by the buffer control, as
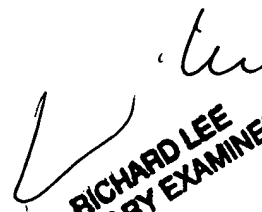
long as the background index L is above the value Lmax ... Vogel fails to teach using a

threshold value to determine or indicate whether an 8x8 DCT block within an image is a

foreground block or a background block and encoding foreground blocks at a high rate and

background blocks at a lower rate ...". The Examiner wants to initially point out that: One

cannot show non-obviousness by attacking references individually where, as here the rejections

are based on combination of references. In re Keller, 208 USPQ 871 (CCPA 1981). Katata et al

nevertheless teaches the conventional determination or indication via a threshold value whether

an 8x8 DCT block within an image is a foreground block or a background block since DCT

block transformer (i.e., within 106 of Figure 1, and see column 5, lines 1-4) of Katata et al is

coupled to a foreground extractor (i.e., 101, 102 of Figure 1 and see column 4, line 45 to column

5, line 4 of Katata et al) for providing foreground and background DCT blocks of coefficients

(see column 1, lines 36-58, column 4, line 45 to column 5, line 4 of Katata et al). And since

Vogel teaches the capability of providing finer or coarser quantization based on a threshold

value, it is hence considered obvious to provide the foreground and background blocks of Katata

et al as determined within the quantization threshold system of Vogel to further thereby render

obvious the claimed features of "wherein a threshold is provided to determine whether a block is

to be encoded at the first high level (i.e., finer) of quantization or the second lower level (i.e.,

coarser) of quantization".

The applicants argued at pages 14-15 of the amendment filed May 19, 2006 that the

instant application has been used as a blueprint to impermissibly combine the teachings of five

different references to allegedly recite all the elements claimed. The Examiner respectfully

disagrees. The Examiner wants to point out again that: It is not necessary that the references

actually suggest, expressly or in so many words, the changes or improvements that applicant has

made. The test for combining the references is what the references as a whole would have

suggested to one of ordinary skill in the art. In re Sheckler, 168 USPQ 716 (CCPA 1971); In re

McLaughlin 170 USPQ 209 (CPA 1971); In re Young 159 USPQ 725 (CCPA 1968). With the

above in mind, it is submitted that one skilled in the art having the applied references in front of

him/her would certainly have no difficulty in reaching the claimed invention. The claimed

features are therefore rendered obvious in view of the applied Stenger, Katata, Vogel, Monro,

and Chun references for the above reasons.

9.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Richard Lee whose telephone number is (571) 272-7333. The
Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with
alternate Fridays off.

RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

9/1/06